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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/075,456	02/15/2002	Karl-Heinz Geier	7239-C2	7945

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EXAMINER
CHANG, AUDREY Y

ART UNIT	PAPER NUMBER
2872	

DATE MAILED: 07/30/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/075,456	GEIER ET AL	
	Examiner	Art Unit	
	Audrey Y. Chang	2872	

-- Th MAILING DATE of this communication app ars on the cover she t with th correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-29* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "diaphragm" and "the blocking means includes diaphragm function" recited in the various claims must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Objections

2. Claims 6-8, 14-15, 23-24 and 28-29 are objected to because of the following informalities:

(1). The phrase "diaphragm being adjustable with respect to its dimensions" recited in claims 6, 14, 23 and 28 is confusing and indefinite since it is not clear what does this phrase really mean. If a diaphragm is adjustable, it always is adjustable with respect to its dimensions.

(2). The phrase "wherein said diaphragm can be exchanged" recited in claims 7, 15, 24 and 29 is confusing and indefinite since it is not clear with respect to WHAT that the diaphragm can be exchanged.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. **Claims 25-29 are rejected under 35 U.S.C. 112, first paragraph**, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the

specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The specification and the claims fail to disclose how could a stereoscopic image of an object be generated in a microscope by simply having a microscopic objective and illumination source, illumination optics. Essential elements such as directing the left eye image of the object and right eye image of the object to the left eye and right eye of an observer respectfully and left eye and right eye ocular or eyepieces are needed for generating stereoscopic image in a microscope system.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1, 3, 9-10, 16, and 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over the patent issued to Takahashi et al (PN. PN. 5,588,948).

Takahashi et al teaches a *stereoscopic endoscope* (22) that is comprised of a single objective lens system (5) for receiving imaging light directed from an object and a relay lens system (7) wherein the objective lens system forming an image of the object at the front end of the relay lens section (6). The single objective lens implicitly defines an imaging beam path, an exit pupil and an entrance pupil along a single optical channel. The image is then transmitted to a pupil dividing means (8), which may be a *mechanical shutter* (23) or a *liquid crystal shutter* (23d). The pupil dividing means serves to *alternatively block a section of the imaging beam*, that is to sequentially occlude the imaging light exiting from left and right regions of the lens section (6) and to form left and right perspective images, or stereo image pair, on the image plane of an imaging device (25). Takahashi et al teaches that the image device

(25) may be a charge couple camera (CCD), and the images may be transmitted to monitors (28 and 29) for displaying and viewing, (please see Figures 3-6 and 10 and columns 4-6 and 8). The stereoscopic endoscope also comprises a controller (27) that generates switching signals to synchronize the switching of the pupil dividing shutter (23) between the blocking positions, and the image beams are transmitted to the frame memory so that when the left and right perspective images are displayed on the monitors they are received by the correct eye respectively. The shutter blocking frequency has to be faster than the flicker frequency of the human eye in order for the stereoscopic illusion to take place. Takahashi et al further teaches that the charge couple camera (25) can be replaced by a ***pair of eyepieces***. The eyepieces implicitly serves as the left eye and right eye ocular, which provides stereoscopic observation of the object to the naked eyes of an observer and this gives an ***arrangement of a microscope***, (please see column 6, lines 32-36).

This reference has met all the limitations of the claims with the exception that it does not teach explicitly to have an illuminating optics for illuminating the object however such illumination optics must be inherently included in the cited reference since the object must be illuminated by some sort of light source, even an ambient light, to provide the necessary imaging light for viewing.

Takahashi et al teaches that the objective lens system (5) is a single objective lens system in the sense that the endoscope-microscope arrangement of the Takahashi et al comprises only a single imaging path. But Takahashi et al does not teach explicitly that the objective lens system is a single lens. However to use a single objective lens or to use a lens system comprises more than one lens elements as objective are all very well known to one having ordinary skill in the art. Such modification would then have been an obvious variation to one skilled in the art for the benefit of making the system more compact.

With regard to claims 9 and 17, Takahashi et al further teaches that an image forming lens (24) is used to transmit the image from the pupil dividing shutter (23) to the CCD camera (25). The left

perspective and right perspective image are then displayed on monitors (28 and 29) for observation and viewing. The monitors (28 and 29) serve as the 3D display device.

7. Claims 4-7, 11-15, and 20-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over the patent issued to Takahashi et al as applied to claims 3, 9 and 17 above, and further in view of the patent issued to Takahashi (PN. 5,557,454).

The stereoscopic endoscope-microscope taught by Takahashi et al ('984) as applied to claims 3, 9 and 17 above has met all the limitations of the claims with the exception that this reference does not teach to include a diaphragm. Takahashi ('454) in the same field of endeavor teaches a stereoscopic endoscope having microscopic arrangement wherein a variable diaphragm (45, Figures 7-10) having variable aperture size and positions are used at a position in optical coupled to the exit pupil of the objective lens system for controlling the quality of the stereoscopic images produced and displayed by the endoscope. It would then have been obvious to one skilled in the art to apply the teachings of Takahashi ('454) to modify the stereoscopic microscope of Takahashi et al ("984) for the benefit of regulating the amount of image light being transmitted for the purpose of controlling the quality of the image produced. Takahashi ('454) teaches that the size of the diaphragm may be varied with respect to the dimension of the diaphragm and different types of the diaphragm may be used which implicitly implies the diaphragm may be exchanged with different types of the diaphragm. The aperture shape of the diaphragm can assume circular shape.

8. Claims 2, 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over the patent issued to Takahashi et al (PN. 5,588,948) in view of the patent issued to Diepeveen et al (PN. 4,682,029).

The stereoscopic endoscope or the microscope arrangement taught by Takahashi et al ('948) with the explicit details described for claims 1 and 9 above has met all the limitations of the claim. This reference however does not teach that the blocking means is a DMD mirror. Diepeveen et al in the same field of endeavor teaches a stereoscopic imager that is comprised of an objective (32) for imaging the light source array (28) and a rotating mirror (38) serves as the pivotal mirror for alternatively *blocking* a section of the image beam to form an image component that produces a left eye image and an image component that produces a right eye image, respectively. Although this reference does not teach explicitly that the rotatable mirror is a digital micromirror device (DMD) explicitly however since DMD is a very well known mirror device in the art for directing light to desired position with great accuracy it would therefore have been obvious to one skilled in the art to replace the rotatable mirror by a DMD for the benefit of providing greater accuracy for directing the light.

9. Claims 25-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over the patent issued to Lucke et al (PN. 5,748,367).

The recitations of claims 25-29 fail to give a complete description for an arrangement that enables a stereoscopic viewing, for the reasons stated above.

Lucke et al teaches an illuminating device for a stereo microscope, wherein the microscope comprises an objective lens group (13), and the illuminating device comprises a fiber optics light guide (1) illuminates light via an illuminated field diaphragm (3) with its diameter, therefore size, being adjustable, and a deflecting element (11) that changes the illumination angle of the illuminating light, (please see Figure 2 and column 4). Lucke et al teaches that the illuminating beam is deflected via the deflecting element, which therefore generates more than one beams at different illumination angles but it does not disclose explicitly that the different beams are generated alternatively. However since alternative or sequential illuminating an object is a standard practice in the art to illuminate and to obtain

stereoscopic imaging light from an object, such modification would have been obvious to one skilled in the art. With regard to claim 26, Lucke et al teaches that the diaphragm takes a circular shape, (please see Figure 39).

Double Patenting

10. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

11. **Claims 1-24 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-10 of U.S. Patent No. 6,348,994**. Although the conflicting claims are not identical, they are not patentably distinct from each other because both of the claims in the instant application and the cited patent are drawn to stereoscopic microscope having a blocking means for alternatively blocking section of the image beam in the imaging beam path to form left eye image and right eye image of a stereo pair and translating the stereo image pair to left eye and right eye ocular of the microscope.

12. **Claims 25-29 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 8, 13 and 29 of U.S. Patent No. 5,835,264.** Although the conflicting claims are not identical, they are not patentably distinct from each other because both the

instant application and the cited patent claim illumination light source and illumination optics with a diaphragm.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Audrey Y. Chang whose telephone number is 703-305-6208. The examiner can normally be reached on Monday-Friday (8:00-4:30), alternative Mondays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn can be reached on 703-305-0024. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9318 for regular communications and 703-872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

Audrey Y. Chang
Primary Examiner
Art Unit 2872

A. Chang, Ph.D.
July 23, 2003